STATE OF FLORIDA

DEPARTMENT OF

Bob Graham, Governor

Health & Rehabilitative Services

District Nine
P. O. Box 29

Palm Beach County Health Dept.
West Palm Beach, Florida 33402

Please Address
Reply to: ESE-WPB

August 15, 1985

Mr. Hamilton S. Oven, Jr., P.E.
Administrator
Siting Coordination Section
Department of Environmental Regulation
2600 Blair Stone Road
Tallahassee, FL 32301-8241

Dear Mr. Oven:

Below please find our very preliminary comments pursuant to your letter dated June 19, 1985 regarding the Palm Beach County Resource Recovery Plant (PA 84-20).

Our staff will continue to review subject application and submit comments at appropriate times.

1. Vol IV - Air Quality, page 2, paragraph 1.4 states that "Palm Beach County is in attainment with all NAAQB". It should be noted that Palm Beach County has been officially designated non-attainment for the pollutant ozone and that the plans to construct subject facility should be prepared accordingly.

2. Vol IV - Air Quality, page 16. Where will the CO monitor be located?

3. Volume IV, page 18 states that the SO_2 emission factor, used in calculating the facilities emissions, is based only on the sulfur content of RDF.

   Volume IV, page 23 states that auxiliary fuel is used during start-up and shut-down and will constitute 1.25% of the heat input to each furnace and either No. 2 oil or natural gas will be used as the auxiliary fuel.

   Volume I, Section 3-11 indicates that auxiliary burners will be used to assist the combustion process when refuse is wet or otherwise difficult to burn.

   Volume 1, Section 3-8 suggests that landfill gas may be used as a source of auxiliary fuel.

It should be determined what the auxiliary fuel will be, what the amount consumed will be, and what the actual sulfur content of this fuel will be.

Auxiliary fuel usage may prove to be a significant source of SO_2 and should be examined more closely.

4. Volume I, Section 2-10 states that should a total combustion shutdown occur, the RDF processing line would continue to operate until the RDF stockpile exceeded storage capacity (2 to 3 days).

   If a total combustion shutdown occurred, the negative air system utilized in the storage area would not be able to vent the odors to the furnace for incineration as originally intended.

   Is an alternative method of odor abatement to be employed during total combustion shutdown?

5. The dust control system used on the RDF processing line is currently designed to vent exhaust air directly to the outside environment.

   The negative air system servicing the RDF processing building vents air to the furnace so that odors will be incinerated.

   The dust control system should also vent the exhaust air into the furnace or it will defeat the purpose of the negative air system.

5. Dewatered ash from the furnaces will be carried by a conveyor system and discharged into open top ash trucks. Adequate precautions should be taken to prevent emissions of this material to the ambient air (material should be kept moist or covered).

7. Access roads should be paved to reduce dust emissions.

8. Land clearing material generated during site preparation should be land-filled and not burned.

9. Unconfined emissions of particulate matter as described in Chapter 17-2. 610(3), FAC shall be adequately controlled during site preparation and plant construction.

Sincerely,

For the Division Director
Environmental Sciences and Engineering

Eugene J. Sacco, Administrator
Air Pollution, Solid and
Hazardous Waste Control

FJG/EJS/sc

United States Department of the Interior

NATIONAL PARK SERVICE
SOUTHEAST REGIONAL OFFICE
75 Spring Street, S.W.
Atlanta, Georgia 30303

IN REPLY REFER TO:

N3615(SER-OPS)

AUG 16 1985

Mr. Tom Rogers
Bureau of Air Quality Management
State of Florida
Department of Environmental Regulation
Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32301-8241

Dear Mr. Rogers:

Thank you for sending us a copy of the Palm Beach County Resource Recovery power plant site certification application for a proposed resource recovery facility in Palm Beach County, Florida, approximately 120 km northeast of Everglades National Park. Your early notification of this project is appreciated.

We have reviewed the information you sent to us and, based on that information, we would not expect emissions from the proposed facility to adversely impact the air quality or air quality values of Everglades National Park.

However, we have several comments regarding the air quality and control technology analyses contained in the application. These comments are discussed in the enclosed technical review document. We ask that you consider these comments while performing your review of the application. We also ask that you forward us a copy of your preliminary determination document once your technical review of the project is completed. We will review your preliminary determination and submit any additional comments regarding the project during the 30-day public comment period.

If you have any questions regarding the enclosed comments, please contact Mark Scruggs of our Air Quality Division in Denver at (303) 236-8765.

Sincerely,

Regional Director
Southeast Region

Enclosure

DER
AUG 22 1985
BAQM

DEPARTMENT OF ENVIRONMENTAL REGULATION

ROUTING AND TRANSMITTAL SLIP

ACTION NO

ACTION DUE DATE

1. TO: (NAME, OFFICE, LOCATION)	Initial / Date
Ed Svec	
2.	Initial / Date
3.	Initial / Date
4.	Initial / Date

REMARKS:

National Park Service Comments on the Palm Beach County RRF

INFORMATION	
	Review & Return
	Review & File
	Initial & Forward

DISPOSITION	
	Review & Respond
	Prepare Response
	For My Signature
	For Your Signature
	Let's Discuss
	Set Up Meeting
	Investigate & Report
	Initial & Forward
	Distribute
	Concurrence
	For Processing
	Initial & Return

FROM:

Tom

DATE 8/23

PHONE

Technical Review of Power Plant Site Certification Application
for Palm Beach County Solid Waste Authority

By

Permit Review and Technical Support Branch
Air Quality Division - Denver

Palm Beach County Solid Waste Authority (Palm Beach County) is proposing to construct a resource recovery facility in an unincorporated section of Palm Beach County. The location is approximately 120 km northeast of Everglades National Park, a PSD class I area administered by the National Park Service. The purpose of the facility is to dispose of solid waste generated in Palm Beach County. The project will be a mass-burn facility with a maximum continuous design rated capacity of 3,000 tons per day of solid waste and a maximum electrical generating capacity of approximately 75 megawatts. The initial design is for 2,000 tons per day capacity and 50 megawatt generating capacity. The emissions from the proposed facility are estimated as follows based on 1,800 tons per day (annual average) of refuse burned: 3,942 tons per year (TPY) of carbon monoxide, 1,314 TPY of nitrogen oxides, 2,957 TPY of sulfur dioxide, 1,150 TPY of chlorides, 65.6 TPY of volatile organic compounds, 214 TPY of particulate matter, 0.131 TPY of sulfuric acid mist, 13.2 TPY of fluorides, 0.46 TPY of lead, 0.98 TPY of mercury, and 0.003 TPY of beryllium.

Under the PSD regulations, these emission rates are considered significant for carbon monoxide, nitrogen oxides, sulfur dioxide, volatile organic compounds, fluorides, mercury, beryllium, and particulate matter. Therefore, new source review is required for the aforementioned pollutants. Following are our comments on the best available control technology, air quality, and air quality related values analyses with respect to the project's expected impacts.

BEST AVAILABLE CONTROL TECHNOLOGY ANALYSIS

The major sources of emissions at the proposed facility are the three associated boilers. Therefore, our review will focus on emission controls on these units. Also, there is a relatively recent publication entitled, "Air Pollution Control at Resource Recovery Facilities" that discusses resource recovery facilities in detail. This document was published in May 1984 by the California Air Resources Board, and was summarized in a technical paper presented at the 77th annual meeting of the Air Pollution Control Association held in June 1984. As of 1984, all refuse-burning facilities with applications pending in California are proposing control technologies that are consistent with, or more stringent than, the guideline emission limits discussed in this report. We refer to this publication throughout our comments on the proposed air pollution control technology analysis.

Particulate Matter (PM)

Palm Beach County proposes to use electrostatic precipitators (ESPs) to minimize PM emissions generated by combustion of the solid waste in the boilers. Each ESP will be capable of reducing the exhaust gas PM concentration to 0.03 grains per dry standard cubic foot (gr/dscf). Palm Beach County states that an ESP with an outlet grain loading of 0.03 gr/dscf is best available control technology (BACT) for the proposed facility.

We agree that high efficiency control devices such as ESPs or baghouses represent BACT for PM emissions from the proposed facility. However, based on information provided in the California Air Resources Board (CARB) document referenced above, an emission limit of 0.01 gr/dscf can be achieved with these devices. This is the guideline emission limit proposed by the CARB for new refuse recovery facilities in California and should be considered as the BACT emission limit.

Palm Beach County indicates on page 8, Volume IV, of their certification application that they could obtain a guaranteed PM emission rate of less than 0.01 gr/dscf from a baghouse. However, they determined a baghouse was not appropriate due to filter media blinding and due to the incidence of fires caused by sparks.

Baghouses have been installed at several refuse burning facilities. Blinding problems were encountered at the East Bridgewater, Massachusetts, installation, but the unit was rebuilt to maintain flue gas temperature at 500°F through the baghouse. The modification apparently solved the major blinding problems. If baghouses are installed, and if the proposed flue gas temperature is increased from 450°F to 500°F, blinding should not be a major problem. The spark carry over and danger of fire in the bags could be minimized by installing a primary collector such as a multitube cyclone ahead of the baghouse. Regardless of whether baghouses or ESPs are installed we feel an emission limit of 0.01 gr/dscf represents BACT.

Sulfur Dioxide (SO_2)

Palm Beach County is proposing no control devices for limiting SO_2 emissions; rather, they are proposing the firing of low sulfur refuse as BACT for the proposed facility. The resulting BACT limit proposed is 0.7 pounds per million Btu heat input ($lb/10^6$ Btu).

The emission guideline recommended in the CARB document is 30 ppm, which corresponds to an SO_2 emission rate of approximately 0.08 $lb/10^6$ Btu. To achieve this emission level, flue gas controls such as wet or dry scrubbing are required. Dry scrubbing processes have been effectively employed at pilot and full-scale refuse burning facilities in Europe, Japan, and the United States. Wet scrubbers have also been employed at full-scale refuse burning facilities. In light of this information, we recommend that Palm Beach County re-evaluate flue gas scrubbing as BACT for SO_2 emissions from the proposed facility.

Nitrogen Oxide (NO_x) and Carbon Monoxide (CO)

The proposed BACT for NO_x and CO emissions is boiler design and good combustion practices. The resulting NO_x and CO emissions limits proposed are 0.3 and 1.0 $lb/10^6$ Btu, respectively. Based on information presented in the CARB report, combustion modifications such as staged combustion, low excess air, and flue gas recirculation can reduce NO_x emissions to between 140 to 200 ppm or 0.28 to 0.4 $lb/10^6$ Btu. Since the proposed NO_x limit falls in this range, we agree that the proposed combustion controls and corresponding emission limit represent NO_x BACT. Regarding CO emissions, proper application of the above combustion modification techniques will also minimize CO emissions.

Other Pollutants

Other pollutants emitted from the proposed resource recovery facility requiring BACT review include fluoride, beryllium, and mercury. The proposed BACT for beryllium is the ESPs for the control of particulate matter emissions. Beryllium is emitted in the solid phase, therefore control of PM emissions will also control beryllium emissions. We agree that the proposed ESPs represent BACT for beryllium.

Fluorides and mercury are emitted in small quantities primarily in the gaseous phase. No additional controls are proposed for these pollutants. However, if the wet or dry scrubbers recommended for SO_2 control were installed, the fluoride emissions could be reduced by over 90 percent.

Our last comment in this section pertains to the large discrepancies in some of Palm Beach County's emission estimates compared to those made for the Broward County refuse recovery facility in their March 1985 site certification application. Since the Palm Beach County facility is rated (annual average) at 1,800 tons per day (initial stage) and the Broward County facility is rated at 3,300 tons per day, we would expect the ratio of the Palm Beach County to Broward County emissions to be 1800/3300 or 0.55.

The following table illustrates that, for several pollutants, this is not the case:

Pollutant	Emission Rate for Palm Beach County (Tons Per Year)	Emission Rate for Broward County (Tons Per Year)	Palm Beach Co / Broward Co. Ratio
SO_2	2957	3428	0.86
NO_x	1314	3491	0.38
CO	3942	555	7.10
PM	214	461	0.46
Lead	0.46	187	0.002
Fluorides	13.2	156	0.085
Sulfuric Acid Mist	0.131	17.3	0.008

The above inconsistencies in emission estimates should be resolved before granting power plant site certifications for the proposed facilities.

AIR QUALITY ANALYSIS

The air quality modeling analysis appears to be adequate for the study area that was analyzed. However, there is no indication of estimates of concentration values in Everglades National Park, a class I area. A screening level air quality modeling analysis should have been performed. Also, at a minimum, a Level I visibility analysis should be done and the results given. (Note: Due to the lack of such a technical analysis, we performed a Level I

visibility analysis. Based on the expected emissions and the distance to the park, the analysis confirms that the project should not significantly impact the visibility at Everglades National Park).

AIR QUALITY RELATED VALUES ANALYSIS

Presently, low SO_2 concentrations have been monitored in Everglades National Park, and the proposed project would probably contribute little to the concentrations. Therefore, we do not anticipate any adverse impacts on air quality related values (AQRVs) in the park from SO_2. However, because this appears to be a high-growth area, and because bioassays of lichens and epiphytes in the park are showing elevated levels of sulfur, we would like to see a cumulative modeling analysis showing the pollutant concentrations expected at Everglades National Park from the proposed source, background, and all other proposed sources.

In addition, high ozone levels have been monitored in Everglades National Park, and we have commenced studies to determine if there are any adverse impacts on vegetation. However, we do not expect the proposed source to significantly contribute to ozone levels in the park. However, it is known that for some species small amounts of SO_2 can act synergistically with the ozone to cause more foliar injury than would be expected with the SO_2 or ozone alone. We are awaiting results of fumigation studies being conducted for us by EPA on slash pine using O_3 and SO_2 which will give us information on how much SO_2 can be added to high O_3 areas before impacts on slash pine will occur.

CONCLUSION

Based on the information provided, we would not expect emissions from the proposed facility to adversely impact the air quality or air quality related values of Everglades National Park. However, we have made several comments regarding the proposed control technology and air quality analyses that should be addressed before the power plant site certification is granted for the proposed project. Results from current studies may lead to the National Park Service reaching different conclusions about the effects of similar sources on AQRVs in the future.